

REMARKS

The Examiner rejected claims 1, 6-10, 13, and 14 under 35 U.S.C. §102(b) as anticipated by Block (U.S. Patent No. 4,872,292). The Examiner also rejected claims 11, 15-18, 31, 37, 41, 43, 44, 46, and 47 under 35 U.S.C. §103(a) as obvious over Block in view of Wray et al. (U.S. Patent No. 4,258,509). Further, the Examiner rejected claims 2-4, 22-24, 26-28, and 38-40 under 35 U.S.C. §103(a) as obvious over Block (U.S. Patent No. 4,872,292). Additionally, the Examiner rejected claims 5, 19, 25, 29, 30, 33-36, 42, and 45 under 35 U.S.C. §103(a) as obvious over Block (U.S. Patent No. 4,872,292). Each of these objections and rejections are addressed individually below.

The Applicants appreciate the Examiner's indication that claims 12, 20, 21, and 32, which are objected to as being dependent upon a rejected base claim, would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The Section 102(b) Claim Rejections:

The Examiner rejected claims 1, 6-10, 13, and 14 under 35 U.S.C. §102(b) as anticipated by Block (U.S. Patent No. 4,872,292). The Applicants disagree with the Examiner's rejections of these claims, as discussed in more detail below. However, in an effort to advance prosecution of claim 1, it has been amended to incorporate the limitations of allowable claim 12. It is therefore submitted that the section 102(b) rejection of claim 1 has been overcome and that claims 2-11, and 13-14, which depend from claim 1, are also allowable.

The Section 103(a) Rejections:

The Examiner rejected claims 11, 15-18, 31, 37, 41, 43, 44, 46, and 47 under 35 U.S.C. §103(a) as obvious over Block in view of Wray et al. (U.S. Patent No. 4,258,509). The Examiner also rejected claims 5, 19, 25, 29, 30, 33-36, 42, and 45 under 35 U.S.C. §103(a) as obvious over Block (U.S. Patent No. 4,872,292).

Claim 15:

Claim 15 stands rejected under section 103 as obvious over Block in view of Wray et al. Independent claim 15 has been amended and requires a rotary finishing device

having a generally circular metal hub with an inner periphery and an outer periphery. The device also includes at least one end cap in releasable communication with the inner periphery of the generally circular hub to allow driving thereof about an axis of rotation. The outer periphery of the generally circular hub includes a plurality of slots uniformly spaced thereabout. At least two of the plurality of slots include at least one sheet of a finishing media secured therein by an adhesive. The at least one sheet has the finishing media disposed substantially along the entirety of at least one side thereof.

The configuration of claim 15 is not taught or suggested by the combination of Block and Wray et al. Initially, the Wray et al. reference does not teach a generally circular hub, a metal hub, or a hub of any variety. The Wray et al. reference teaches compressing the sheets of abrasive material such that they adhere to one another to form a rigid block. (Col. 1, lines 51-55.) The block can then be formed into a circular array and attached to a pair of opposing end caps by a settable material. In other words, the finishing media is bonded to the fiberglass reinforced polyester end caps to form a single permanent structure. (Col. 5, lines 24-27.) This is contrary to Applicants' invention of claim 15, where the finishing media is disposed in slots formed in a metal generally circular hub having an inner periphery and an outer periphery. Further, an end cap communicates through engagement with the inner periphery of the hub to cause rotation of the finishing device. Moreover, the end cap is removable and thus reusable – unlike the rotary device in Wray et al.

The Block reference also lacks features of Applicants' claimed invention. Initially, as the Examiner noted, the Block reference does not teach an end cap. Further, the Block reference does not teach sheets of finishing media with the finishing media, such as an abrasive, disposed substantially along the entirety of at least one surface of the finishing media. Instead, Block teaches sheets with no abrasive particles on the flaps 32 at the position of the slot. Block teaches that the absence of abrasive particles allows the sheets to be more easily inserted into the slots.

There is simply no suggestion or motivation in either Block or Wray et al. to combine them and arrive at Applicants' invention of claim 15. Initially, the problem

addressed by Block is to maximize the number of sheets or finishing media around the device, which can contact the surface of the device to be finished. Block accomplishes this by removing the abrasive from about the lower third of each sheet such that more sheets can be wedged into a given slot. This preprocessing step is relatively expensive and teaches away from any combination with Wray et al. which includes sheets of finishing media that are not subjected to any preprocessing. Moreover, this preprocessing step can also weaken the ends, which can cause them to tear when rotated at high speeds, which Wray et al. recognizes as a significant disadvantage. (Col 2, lines 40-44.) Further, neither reference discloses a generally circular hub with an end cap in communication with an inner periphery of the generally circular hub. As such, claim 15 cannot be rendered obvious by these references.

It is therefore submitted that claim 15 is allowable over the art of record for at least these reasons and that claims 16-21 and 23-24, which depend from claim 15, are allowable for the same reasons.

Claim 25:

Claim 25 stands rejected under section 103 as obvious over Block. Independent claim 25 has been amended to require a rotary finishing device having a generally circular hub with a centerline, an outer periphery, and an inner periphery defining a throughhole. The outer periphery includes a plurality of slots spaced thereabout with the plurality of slots being positioned at approximately an equal number of degrees apart from one another. At least one of the plurality of slots is defined by a pair of side portions that extend from the outer periphery of the generally circular hub in a direction not parallel to a reference line extending from the centerline to a point between the pair of side portions. The pair of side portions are oriented generally parallel to one another. The device includes at least one sheet of finishing media secured by an epoxy within at least one slot. The sheet of finishing media includes finishing media disposed substantially along an entirety of one side thereof.

Claim 25 therefore differs from Block in that Block does not teach a plurality of slots each having a pair of side portions that extend from the periphery of the generally

circular hub such that the pair of side portions are oriented generally parallel to one another. Further, the finishing media in Block has the finishing material, such as abrasive, removed from the finishing media in a separate processing step. This step is relatively time consuming and cumbersome and can significantly weaken the sheets and therefore decrease the life of the rotary device.

The configuration of claim 25 is not taught or suggested by Block. As set forth above, the Block reference attempts to provide more sheets around the periphery of the device. It does this by removing the abrasive material on about the bottom third of the device so that more sheets can be wedged into each slot. Further, Block teaches that the slots must be configured such that the finishing sheets are wedged or otherwise retained in each slot. For example, the slots in Figure 10 are spaced apart a further distance at their bottom ends than their top ends such that when the adhesive 118 is used to secure the sheets, a "bulbous portion 122" is formed in the socket, which is larger than the socket opening and prevents the sheets from disengaging from the slot. This non-parallel configuration of the slots with a narrow opening provides two disadvantages. First, the slots have to be spaced a further distance apart, which decreases the number of slots that can be included in the hub. Second, in the embodiments shown in Figures 6 and 8, the sheets need to be inserted into the slots from the sides -- not axially.

On the other hand, Applicants' invention of claim 25 allows for axial insertion of the sheets. Further, because the slots have side portions that are parallel to one another, the opening and the base of each slot have substantially the same width. Applicants' claimed invention thus allows the sheets of finishing media to be retained in the slots by epoxy only. Accordingly, the invention of claim 25 does not require that the slots are configured to retain the sheets of media in the slots. Therefore, it would not be obvious to one of skill in the art to modify Block to arrive at Applicants' claimed invention because the cited references teach away from a slot with parallel side portions. Moreover, because the references have generally the same width, the sheets do not require any preprocessing to insert them into the slots as contemplated by Block:

Since there are no abrasive particles on the flaps 32 at the position of the restricted opening 128 because the abrasive particles have been removed from the support portions 40, it is easier to slide the pack 118 into the socket 122 than the corresponding packs of the prior art.

(Col. 6, lines 20-25.)

It is therefore submitted that claim 25 is allowable over the art of record for at least these reasons and that claims 26-32 and 35-36, which depend from claim 25, are allowable for the same reasons.

Claim 37:

Claim 37 stands rejected under section 103 as obvious over Block in view of Wray et al. Claim 37 requires a rotary finishing device including a generally circular hub having an inner periphery and an outer periphery with the inner periphery defining a throughhole. The device also includes an end cap that is intended to engage the inner periphery of the generally circular hub. The outer periphery of the generally circular hub includes a plurality of slots spaced uniformly spaced thereabout. Each of the plurality of slots is defined by a pair of side portions which extend generally outwardly from the outer periphery and are oriented generally parallel to one another. At least two of the plurality of slots includes at least one sheet of a finishing media secured therein by an epoxy. The sheet includes a finishing media disposed substantially along an entirety of one surface thereof.

The configuration of claim 15 is not taught or suggested by the combination of Block and Wray et al. Initially, the Wray et al. reference does not teach a generally circular hub, a metal hub, or a hub of any variety. The Wray et al. reference teaches compressing the sheets of abrasive material such that they adhere to one another to form a rigid block. (Col. 1, lines 51-55.) The block can then be formed into a circular array and then attached to a pair of opposing end caps by a settable material. In other words, the finishing media is bonded to the fiberglass reinforced polyester end caps to form a single permanent structure. (Col. 5, lines 24-27.) This is contrary to Applicants' invention of claim 15, where the finishing media is disposed in slots formed in a metal

generally circular hub having an inner periphery and an outer periphery. Further, an end cap communicates through engagement with the inner periphery of the hub to cause rotation of the finishing device. Moreover, the end cap is removable and thus reusable – unlike the rotary device in Wray et al.

The Block reference also lacks features of Applicants' claimed invention. Initially, as the Examiner noted, the Block reference does not teach an end cap. Further, the Block reference does not teach sheets of finishing media with the finishing media, such as an abrasive, disposed substantially along the entirety of at least one surface of the finishing media. Instead, Block teaches sheets with no abrasive particles on the flaps 32 at the position of the slot. Block teaches that the absence of abrasive particles allows the sheets to be more easily inserted into the slots.

There is simply no suggestion or motivation in either Block or Wray et al. to combine them and arrive at Applicants' invention of claim 37. Initially, the problem addressed by Block is to maximize the number of sheets or finishing media around the device, which can contact the surface of the device to be finished. Block accomplishes this by removing the abrasive from about the lower third of each sheet such that more sheets can be wedged into a given slot. This preprocessing step is relatively expensive and teaches away from any combination with Wray et al. which includes sheets of finishing media that are not subjected to any preprocessing. Moreover, this preprocessing step can also weaken the ends, which can cause them to tear then rotated at high speeds, which Wray et al. recognized is a significant disadvantage. (Col. 2, line 40-44.) Further, neither reference discloses a generally circular hub with an end cap in communication with an inner periphery of the generally circular hub. As such, claim 37 cannot be rendered obvious by these references.

Further, the finishing media in Block has a portion of the finishing material, such as abrasive, removed from the finishing media in a separate processing step. This step is relatively time consuming and cumbersome. The configuration of claim 37 is not taught or suggested by Block. As set forth above, the Block reference attempts to provide more sheets around the periphery of the device. It does this by removing the abrasive material

on about the bottom third of the sheets (the portion of the sheets that are intended to engage the slot) so that more sheets can be wedged into each slot.

It is therefore submitted that claim 37 is allowable over the art of record for at least these reasons and that claims 38-40, 44-45, and 47 which depend from claim 37, are allowable for the same reasons.

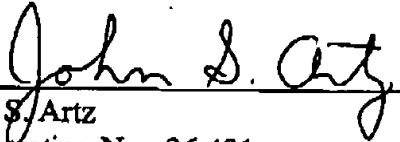
Conclusion:

It is respectfully submitted that all objections and rejections of record have been overcome and that all pending claims are in condition for allowance. A notice of allowance is therefore earnestly solicited.

If the Examiner should have any questions, he is urged to contact the undersigned.

Respectfully submitted,

ARTZ & ARTZ P.C.


John S. Artz
Registration No. 36,431
28333 Telegraph Road, Ste. 250
Southfield, MI 48034
(248) 223-9500

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